

CLAIMS

What is claimed is:

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1. An adaptive admission control system for a server application system, comprising:

a request queue that stores incoming requests before they are serviced by the server application;

a discard queue that stores requests to be discarded;

an actuator coupled to the request queue, the discard queue, and an external listen queue to determine the input rate of requests from the listen queue during previous processing cycles, and to send a target number of requests to the request queue from the listen queue and the discard queue during the next processing cycle;

a controller coupled to the actuator and the request queue to determine the target number based on the difference between the actual and desired queue occupancy of the request queue.

2. The adaptive admission control system of claim 1, wherein the actuator sends the target number of requests from the external listen queue to the request queue and any remaining requests to the discard queue during the current processing cycle if the input rate is greater than or equal to the target number.

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3. The adaptive admission control system of claim 2, wherein the actuator randomly determines which requests are to be sent to the request queue and which requests are to be sent to the discard queue so long as the total number of the requests sent to the request queue is equal to the target number.

4. The adaptive admission control system of claim 3, wherein if the actuator decides to send a request to the request queue, the actuator determines if the request is a new session request and, if so, sends an existing session request from the discard queue instead of the new request to the request queue and discards the new request to the discard queue.

5. The adaptive admission control system of claim 1, wherein the actuator sends the target number of requests from both the listen queue and the discard queue to the request queue if the input rate is less than the target number.

6. The adaptive admission control system of claim 5, wherein the actuator retrieves requests from the discard queue by first pulling requests from an existing session queue of the discard queue.

7. The adaptive admission control system of claim 1, wherein the discard queue further comprises an existing session request discard queue and a new session request discard queue.

8. The adaptive admission control system of claim 7, wherein the discard queue is cleaned up after every predetermined number of processing cycles.

9. A server application system, comprising:

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a server application module that performs predetermined server functions based on external requests from an external queue;

an adaptive admission control system that controls admission to the server application module, wherein the adaptive admission control system further comprises

a request queue that stores incoming requests before they are serviced by the server application;

a discard queue that stores requests to be discarded;

an actuator coupled to the request queue, the discard queue, and an external listen queue to determine the input rate of requests received from the listen queue during previous processing cycles, and to send a target number of requests to the request queue from the listen queue and the discard queue during the next processing cycle;

a controller coupled to the actuator and the queue to determine the target number based on the difference between the actual and desired queue occupancy of the request queue.

10. The server application system of claim 9, wherein the actuator sends the target number of requests from the external listen queue to the request queue and any remaining requests to the discard queue during the current processing cycle if the input rate is greater than or equal to the target number.

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11. The server application system of claim 10, wherein the actuator randomly determines which requests are to be sent to the request queue and which requests are to be sent to the discard queue so long as the total number of the requests sent to the request queue is equal to the target number.

12. The server application system of claim 11, wherein if the actuator decides to send a request to the request queue, the actuator determines if the request is a new session request and, if so, sends an existing session request from the discard queue instead of the new session request to the request queue and discards the new session request to the discard queue.

13. The server application system of claim 9, wherein the actuator sends the target number of requests from both the listen queue and the discard queue to the request queue if the input rate is less than the target number.

14. The server application system of claim 13, wherein the actuator retrieves requests from the discard queue by first pulling requests from an

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existing session queue of the discard queue.

15. The server application system of claim 9, wherein the discard queue further comprises an existing session request discard queue and a new session request discard queue.

16. The server application system of claim 15, wherein the discard queue is cleaned up after every predetermined number of processing cycles.

17. The server application system of claim 9, wherein the server application module is a TCP/IP-based server application.

18. The server application system of claim 9, wherein the server application module is a web server application.